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Copy Pam/Hugh

3 November 1991

Pamela Grubaugh-Littig
Permit Supervisor
Utah Division of Oil Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

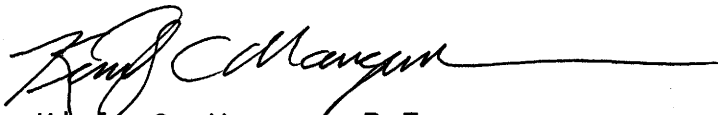
Dear Ms. Grubaugh-Littig:

Re: Hydrology Review, Bear Canyon Mine, Co-Op Mining Company,
ACT/015/025, Emery County, Utah

Attached are two copies of proposed pages for the mine plan. Modifications and updates have been made to the text to address issues made by Hugh Klein of the Division in a review dated 4 Oct 1991.

Each issue is addressed separately on the attached pages. Please notify me if there are any questions or concerns regarding this matter.

Thank you,



Kimly C. Mangum, P.E.
Permitting & Compliance Consultant.

Enclosure(s)
cc: Co-Op Mining Co.

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DIVISION OF
OIL GAS & MINING

DOGM HYDROLOGY REVIEW

SECTION I (Text)

- Plate 7-5 With this opportunity to review the drainage areas, we have renumbered the areas, ditches and culverts. The new numbering system should make review easier.
- p 7-77 The proper table has been referenced.
- p 7-83 Text updated to show 10 year 6 hour event of 1.5 inches.
- Table 7.2-9 Watershed area AU-18 has been added to the table.
p 7-85, 7-85A Please note that table has been updated.
- p 7-87 Table 7.2-10 has been revised to include typical average side slope. Page 7-87 describes the typical ditch shape as triangular or trapezoidal.
- p 7-iii, 7-93, 7-102 thru 7-104 Figure 7.2-14 has been deleted and any energy dissipators will be called out specifically as used. Sections renumbered.
- p 7-103 Paragraph reworded.
- p 7-107, 7-32 Reference deleted from text. See page 7-32.
- re. p 7-108 Correction to text submitted previously, dated 5 Oct 1991.
- p 7-109 Table 7.2-12 has been updated as requested.
- re. p 7-110 See page 7-117.
- p 7-112 Clarified as requested.
- p 7-117 Corrected as indicated.
- p 7-119 Corrected as requested.
- p 7-121 Text updated to clarify actual procedure.
- p 7-iv, 7-102, 7-106, 7-122 Referenced ditch and culvert numbers updated.

SECTION II (Appendix 7F; Sediment Pond Calculations)

App 7-F Calculations have been revised to incorporate the revised numbering system. All areas are included.

p 7-112 Text has been revised to clarify enlargement of Sediment Pond B.

SECTION III (Appendix 7H; Reclamation Channel Sizing)

p 7H-7 A copy of this page incorporating calculations for WS-3 is attached.

re. p 7H-37,
7H-39 Effort to clarify this issue are made in the referenced appendix. The data was intended for use in calculating drainage channels only and not as an analysis of the soils. Please contact EarthFax if you do not understand.

re. p 7H-41,
7-44 "Marginal" represents the difference between calculation results and the tables used. Design was conducted using prudent engineering judgement.

SECTION IV (Appendix 7G; Diversion Adequacy Calculations)

App 7-G Calculations have been revised to meet the 10 year 6 hour storm requirements as determined by the Division.

p 7G-48 Discussion of water bar is included.

 Ditches have been renumbered and calculations redone.

SECTION V (Hydrology Map, Plates 7-1)

- Plate 7-1C Elevation has been corrected. Culvert "Abandoned in place.
- Plate 7-5 See notes added.
- Plates 7-1, Drainage areas, ditches and culverts have been
Plate 7-5 renumbered to remove discrepancies.

SECTION VI (Hydrology Map, Plates 7-5)

- Plate 7-5 Drainage areas, ditches and culverts have been renumbered to remove discrepancies. Areas AU-11 and AU-18 are included.
- Areas AD-1, AD-2, AD-3, and AD-5 are not disturbed areas and have not been incorporated into the disturbed area boundaries accordingly. Drainage from these areas passes into the sediment control structures, specifically Sed Pond A and so they have been included in the design of this structure. Please see the notes that have been added to Plate 7-5 to clarify this issue.